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(74)代理人 弁理士 近藤 久美

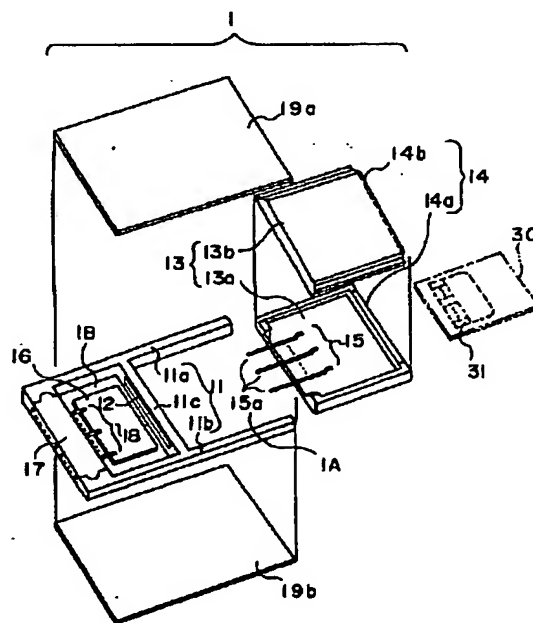
(54)【発明の名称】 小型薄型カード用カード状アダプタ

(57) 【要約】

【課題】 従来の小型薄型カード用カード状アダプタは小型薄型カード用収納部がカード状アダプタの面積の約半分を占める形でフレームと一体形成する必要があり従ってフレームが非対称な形状であったので金型の構造が複雑なものとなるため設計作業が複雑となり、かつ金型費用が高価なものとなってしまう。

【解決手段】 少なくともカード型アダプタの構成部材であるフレームと小型薄型カード収納箱とを別体で形成し、これらを組み合わせる。

【効果】 フレームと小型薄型カード収納部との別体形成により、フレーム形状も小型薄型カード用収納箱も平易で略対称的な形状となるため、成形用金型の設計作業が容易でかつ製作費用も安価となる。



## 【特許請求の範囲】

【請求項1】一方の短辺の断面側から小型薄型カード(30)用の挿入口(14)を設けるとともに他方の短辺側に外部機器接続用端子部(17)を設けた標準サイズメモリカードの外形形状を有する小型薄型カード用カード状アダプタ(1)であって、少なくとも前記カード状アダプタ(1)の構成部材であるフレーム(11)と前記挿入口(14)を有する小型薄型カード用収納箱(13)全体とが別体で形成されたものであることを特徴とする小型薄型カード用カード状アダプタ。

【請求項2】前記フレーム(11)が前記カード状アダプタ(1)の一对の長辺側枠(11a, 11b)と、該側枠(11a, 11b)に直交する一本の中央枠(11c)とによって構成される平面略H字形状であるとともに、前記中央枠(11c)に前記中央枠で仕切られる一方の空間(1A)から他方の空間(1B)へ複数の小型薄型カード用コネクタピン(15)のリード部(15a)を通すための通孔(12)が形成されていることを特徴とする前記請求項1記載の小型薄型カード用カード状アダプタ。

【請求項3】前記小型薄型カード用収納箱(13)が第一の挿入口部分(14a)を設けた底部(13a)と第二の挿入口部分(14b)を設けた蓋部(13b)とを組合せてなるとともに、内部には第一の挿入口部分(14a)と第二の挿入口部分(14b)を組合せてなる挿入口(14)を通して小型薄型カード(30)を隠蔽収納でき、かつ小型薄型カードの接続用端子(31)と電気的接続を行う複数の小型薄型カード用コネクタピン(15)を備え、かつ前記コネクタピン(15)のリード部(15a)が前記収納箱(13)の挿入口(14)とは反対方向へ導出されているものであることを特徴とする前記請求項1記載の小型薄型カード用カード状アダプタ。

【請求項4】前記小型薄型カード用収納箱(13)が、少なくとも前記中央枠(11c)に設けた通孔(12)に前記収納箱(13)から導出された複数のリード部(15a)を通過させかつ、突出させて組み合わせられることを特徴とする前記請求項1記載の小型薄型カード用カード状アダプタ。

【請求項5】前記フレーム(11)と小型薄型カード用収納箱(13)とをフレーム(11)の長辺側枠の一方(11b)の内面に設けた凸部(111)と、小型薄型カード用収納箱(13)の側部に設けた凹部(112)とで嵌合して組み合わせたと特徴とする前記請求項4記載の小型薄型カード用カード状アダプタ。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、小型薄型カードとパソコン等の本体機器に設けた標準サイズのメモリカード用接続スロットとを電気的に接続するために介在させ

るカード状アダプタに関する。

## 【0002】

【従来の技術】従来、デジタル・カメラ等に装填して、撮影画像データを記憶させて用いる小型薄型カードが市販されている。その中には図3のカード状アダプタの分解・斜視・模式図に示すような、厚さ約0.8mm程度で大きさが約35mm×約45mm程度でかつ表面露出端子31を備えた小型薄型カード30が知られている。この小型薄型カード30をカメラに装填して撮影し画像データを記憶させ、これをカメラから取り外し、取り外した小型薄型カード30の記憶画像データをパソコン等の外部機器(図示せず)へ送り、外部機器の表示部に撮影画像を表示することもよく行われる。

【0003】しかしながら、通常のパソコン等の外部機器に設けられるカード挿入接続機構は、約54mm幅×約86mm長さ×約(3.3~5.0)mm厚さのいわゆるパソコン用標準サイズのメモリカードに適合する大きさのものであり更に外部接続用端子27のピン数も前記標準メモリカードに適合するようにしてあるので、前記小型薄型カード30を前記外部機器に設けたカード挿入接続機構に直接に挿入接続することが難しい。

【0004】そこで外形形状および外部接続用端子部27の形状がパソコン用標準サイズのメモリカードの形状と同一で、しかも前記小型薄型カード30を隠蔽収納し、小型薄型カード30とパソコン等の外部機器とを間に介在して両者を電気的に接続できるような構成のカード状アダプタ2が必要となる。

【0005】従来の小型薄型カード用カード状アダプタ2は、図3に示すようにフレーム21がカード状アダプタ2の一对の長辺側枠21a, 21bと、該側枠のほぼ中央部で該側枠に直交する中央枠21cと、同じく該側枠の片端部で該側枠に直交する端枠21dと底枠21eとからなっている。

【0006】そして、小型薄型カード用収納部23は前記長辺側枠の各々の一部分21a", 21b"と前記中央枠21cと端枠21dと底枠21eとからなる前記底部23aと蓋部23bとを組合せて形成されている。

【0007】底枠21eに複数の小型薄型カード用コネクタピン25を配し、このリード部25aを通孔22から導出している。この状態で前記底部23aと蓋部23bとを組合わせると、小型薄型カード用挿入口24が形成されかつコネクタピン25が固定される。

【0008】カード型アダプタ2の残りの空間には回路基板26とカード状アダプタ2の外部接続用端子27が組み込まれ、前記導出されたリード部25aと回路基板26の間、及び回路基板26と前記外部接続用端子27との間を夫々ハンダ接続など行う。こうして組み立てたカード状アダプタ2芯部の両面をステンレス等の金属薄板29a, 29bで被覆して小型薄型カード用カード状アダプタ2を得ていた。

## 【0009】

【発明が解決しようとする課題】しかしながら上記従来のカード型アダプタでは、一対の側枠と中央枠と端枠と底枠とからなる極めて非対称な形状であるため、これを一体形成するための金型の構造が極めて複雑なものとなるため設計作業が複雑となり、かつ金型費用が高価なものとなってしまおうという問題点がある。

## 【0010】

【課題を解決するための手段】本発明は上記問題点に鑑みなされたものであって、一方の短辺の断面側から小型薄型カード用の挿入口を設けるとともに他方の短辺側に外部機器接続用端子部を設けた標準サイズのメモ리카ードの外郭形状を有する小型薄型カード用カード状アダプタであって、少なくとも前記カード状アダプタの構成部材であるフレームと前記小型薄型カード用収納箱全体とが別体で形成された小型薄型カード用カード状アダプタを提供する。

【0011】更に、請求項1に関する詳細部分の実施態様として次のa)～e)に述べる手段をも提供する。

a) フレームは平面略H字形状の一体形成品である。この平面略H字形状とは、カード型アダプタの一対の長辺側枠と、前記側枠のほぼ中央で該側枠に直交する一本の中央枠とによって構成されるものである。更に、前記中央枠には、該中央枠で仕切られる一方の空間から他方の空間へ小型薄型カード用コネクタピン15のリード部を通すための通孔が形成されている。要するに簡潔な略対称形状のフレームとしている。

b) 小型薄型カード収納箱は、第一の挿入口部分を設けた底部と第二の挿入口部分を設けた蓋部とを組合わせてできる挿入口を通して小型薄型カードを隠蔽収納でき、かつ小型薄型カードの接続用端子と電気的接続を行う複数の小型薄型カード用コネクタピンを備え、かつ前記コネクタピンのリード部が前記収納箱の挿入口とは反対方向へ導出されている。要するに小型薄型カード収納箱はフレームとは関係ない別工程で組み立てるようにしている。

【0012】c) 前記小型薄型カード用収納箱が、少なくとも前記中央枠に設けた通孔に前記収納箱から導出された複数のリード部を通過させかつ、突出させて組み合わせられる。要するに簡潔な形のもの同士を組み立てできる。

d) 前記c)の組み合わせを確実に行うために、フレームの長辺側枠の一方の内面に設けた凸部と、小型薄型カード用収納箱の側部に設けた凹部とで嵌合する。要するに簡潔な形のもの同士を確実に組み立てできる。

## 【0013】

【発明の実施の形態】以下、本発明を図1乃至2に示す実施例に基づいて詳細に説明する。図1は本発明の小型薄型カード用カード型アダプタの分解・斜視・模式図であり、図2は同じく構成部材の嵌合、組み合わせを説明

するための斜視・模式図である。

【0014】図1は厚さ約0.8mm程度で大きさが約35mm×約45mm程度でかつ表面露出端子31を有するメモリ部を備えた小型薄型カード30とパソコン等の外部機器とを接続するために用いられる小型薄型カード用カード状アダプタ1を示している。このカード型アダプタ1は外郭形状は約54mm幅×約86mm長さ×約(3.3～5.0)mm厚さのいわゆるパソコン用標準サイズのメモ리카ードと同じものである。構成部材としては、平面略H字形状、即ちカード型アダプタ1の一対の長辺側枠11a、11bと、前記側枠11a、11bのほぼ中央で該側枠に直交する一本の中央枠11cとを一体形成したフレーム11がある。このフレーム11の中央枠11cには、複数の小型薄型カード用コネクタピン15のリード部15aを一方の空間1Aから他方の空間1Bへ通すための通孔12が形成されている。

【0015】次に、前記フレーム11とは別体で形成された小型薄型カード用収納箱13がある。この小型薄型カード用収納箱13は挿入口の一方の部分14aを設けた底部13aと挿入口の他方部分14bを設けた蓋部13bとを組合わせればよく、こうしてできた小型薄型カード用収納箱13の内部には前記挿入口14を通して小型薄型カード30を隠蔽収納でき、かつ小型薄型カード30のメモリ部の接続用端子31と電気的接続を行う複数の小型薄型カード用コネクタピン15を備え、かつ前記コネクタピン15のリード部15aが前記挿入口14とは反対方向へ導出されている。

【0016】次に、回路基板16および外部接続用端子17がある。そして、以上のべた構成要素を組み立てて得た小型薄型カード用カード状アダプタ芯体の両面を被覆するためのステンレスなどからなる金属薄板、19a、19bがある。

【0017】上記各構成部材を組み合わせさせてカード型アダプタ1を形成したり、パソコンなどの外部機器(図示せず)へ接続する方法は以下(1)～(8)の手順で行う。

(1) 内部に複数の小型薄型カード用コネクタピン15を配し、前記コネクタピン15のリード部15aを導出した状態で底部13aと蓋部13bとを当設し、かしめて、小型薄型カード用収納箱13を組み立てる。

(2) フレーム11の一対の長辺側枠11a、11bと、一本の中央枠11cとによって構成される一方の空間1Aに前記小型薄型カード用収納箱13を配しつつ、前記リード部15aを通孔12に通して、他方の空間1Bへ突出させる。この確実な組み合わせ方の一実施例を図2に示す。図2において、小型薄型カード用カード状アダプタ1の一方の長辺側枠11bの内面に設けた2箇所の凸部111を形成し、これに対応させて小型薄型カード用収納箱13の側部に2箇所の凹部112を設ける。そして夫々の凸部111を夫々の凹部112の縦溝

に入れた後、前記リード部15aを通孔12に通して他方の空間1Bへ突出させる際に、夫々の凸部111を夫々の凹部112の横溝にスライドさせ、終端で嵌合させればよい。このような嵌合は本実施例に限定されることなく、前記とは逆に凸部がカード用収納箱13の側部に設けられ、凹部が小型薄型カード用カード状アダプタ1の一方の長辺側枠11bに設けられても良いし、凸部なり凹部なりが、カード用収納箱13の両側部及び小型薄型カード用カード状アダプタ1の両方の長辺側枠11a、11bに設けられても良いし、長辺側枠片当たりの凸部または凹部の設置箇所数は任意であっても良い。

【0018】(3) 外部接続用端子17を長辺側枠11a、11bの他方の空間1B側の端部に組み込む。ここで、この外部接続用端子17の複数のコネクタリード18は内側に突出した状態となる。

(4) 他方の空間1B側で、回路基板16と小型薄型カード用コネクタピン15のリード部15a、および回路基板16と外部接続用端子17の複数のコネクタリード18をハンダ接続する。

(5) 以上組み立てたものの両面に金属薄板、19a、19bを貼り付けるなどして被覆し、小型薄型カード用カード状アダプタは完成する。

【0019】(6) 前記小型薄型カード用カード型アダプタの挿入口14を通じて、小型薄型カード30を小型薄型カード用収納箱13に挿入し、小型薄型カードの接続用端子31を内部に設けた複数の小型薄型カード用コネクタピン15に確実に接触させる。

(7) 前記小型薄型カード30が挿入、接続された小型薄型カード用カード状アダプタをパソコン等の外部機器(図示せず)に設けたパソコン用標準サイズのメモリカード用のカード挿入接続機構(図示せず)に挿入接続する。

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\* (8) パソコン等の外部機器と小型薄型カード30とのアクセスを行う。

【0020】

【発明の効果】以上述べたように本発明の小型薄型カード用カード状アダプタでは、フレームと小型薄型カード用挿入口を有する小型薄型カード用収納箱とを別体で形成するので、フレーム形状も小型薄型カード用収納箱も平易な略対称的な形状となるため、成形用金型の構造も平易なものとなり、設計作業が容易かつ成形用金型が安価に製作できるようになる。

【図面の簡単な説明】

【図1】図1は本発明の小型薄型カード用カード状アダプタの分解・斜視・模式図である。

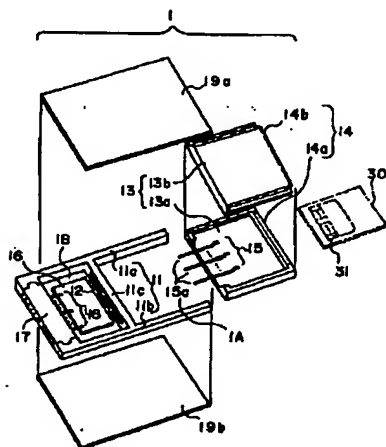
【図2】図2は同じく構成部材の嵌合、組み合わせを説明するための斜視・模式図である。

【図3】図3は従来の小型薄型カード用カード状アダプタの分解・斜視・模式図である。

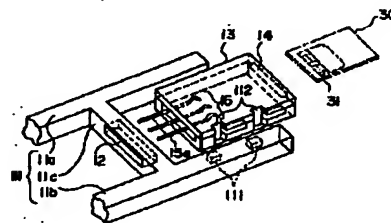
【符号の説明】

- |          |                  |
|----------|------------------|
| 1        | 小型薄型カード用カード状アダプタ |
| 11       | フレーム             |
| 11a, 11b | 長辺側枠,            |
| 11c      | 中央枠              |
| 12       | 通孔               |
| 13       | 小型薄型カード用収納箱      |
| 14       | 小型薄型カード用挿入口,     |
| 15       | 小型薄型カード用コネクタピン15 |
| 15b      | リード部,            |
| 16       | 回路基板,            |
| 17       | 外部接続用端子部         |
| 19a, 19b | 金属薄板,            |
| 30       | 小型薄型カード          |
| 31       | 表面露出端子           |

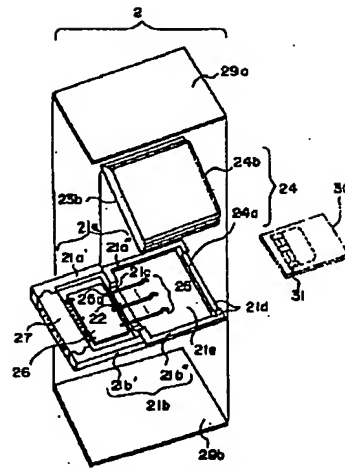
【図1】



【図2】



【図3】



$$21a + 21b + 21c + 21d + 21e = 21$$

$$21a' + 21b' + 21c + 21d + 21e + 29a$$

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# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MITSUBISHI PLASTICS IND LTD

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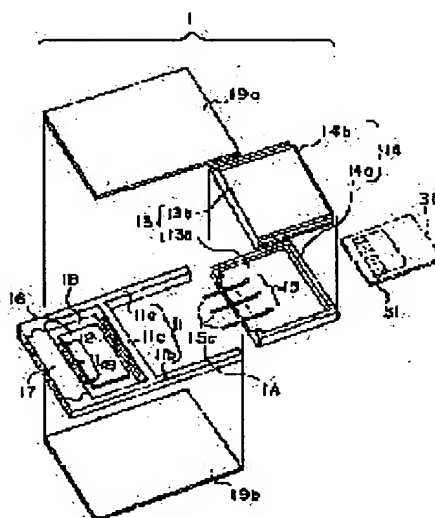
(72)Inventor : TATSUGUCHI YOSHIHIRO

## (54) CARD-LIKE ADAPTER FOR SMALL AND THIN CARD

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To set a frame and a storage box to be simple and almost symmetrical forms, to facilitate design work, to inexpensively generate a forming metallic mold by separately forming a frame and a storage box for small and thin card, which has an insertion port for small and thin card.

**SOLUTION:** A through hole 12 for making the lead parts 15a of the plural connector pins for small and thin card 15 pass through from one space 1A to the other space 1B is formed at the central frame 11c of the frame 11. The storage box for small and thin card 13 is separately formed from the frame 11. The storage box 13 is combined by a bottom 13a providing one part 14a of the insertion port and a cover part 13b providing the other part 14b of the insertion port. The small and thin card 30 can be sealed and stored in the storage box 13 through the insertion port 14. The plural connector pins for small and thin card 15 for electrically connecting the connection terminal 31 of the memory part of the card 30 are provided.



## LEGAL STATUS

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## [Claim(s)]

[Claim 1] It is the card-like adapter for small thin cards (1) which has the outline configuration of the standard size memory card which prepared the terminal area for external instrument connection (17) in the shorter side side of another side while preparing insertion opening (14) for small thin cards (30) from the cross-section side of one shorter side. The card-like adapter for small thin cards characterized by forming the frame (11) which is the configuration member of said card-like adapter (1) at least, and the whole housing for small thin cards (13) which has said insertion opening (14) with another object.

[Claim 2] While said frame (11) has the shape of flat-surface abbreviation zygal constituted with the long side side frame (11a, 11b) of the pair of said card-like adapter (1), and one central frame (11c) which intersects perpendicularly with this side frame (11a, 11b) Said central frame The space currently steadily divided into (11c) by said central frame Said card-like adapter for small thin cards according to claim 1 characterized by forming the through-hole (12) for letting the lead section (15a) of two or more connector pins for small thin cards (15) pass in the space (1B) of another side from (1A).

[Claim 3] While said housing for small thin cards (13) comes to combine the pars basilaris ossis occipitalis (13a) which prepared the first insertion opening part (14a), and the covering device (13b) which prepared the second insertion opening part (14b) The concealment receipt of the small thin card (30) can be carried out through insertion opening (14) which comes to combine the first insertion opening part (14a) and the second insertion opening part (14b) with the interior. And it has two or more connector pins for small thin cards (15) which perform the terminal for connection (31) and electrical installation of a small thin card. And for insertion opening (14) of said housing (13), the lead section (15a) of said connector pin (15) is said card-like adapter for small thin cards according to claim 1 by which it is characterized by being that from which it is drawn to the opposite direction.

[Claim 4] Said card-like adapter for small thin cards according to claim 1 characterized by for said housing for small thin cards (13) passing the through-hole (12) prepared in said central frame (11c) at least, and making two or more lead sections (15a) drawn from said housing (13) project to it, and combining it with it.

[Claim 5] Said card-like adapter for small thin cards according to claim 4 by which it is fitted in and combining [ in said frame (11), the heights (111) which prepared the housing for small thin cards (13) in the inside / on the other hand / (11b) / of the long side side frame of a frame (11), and the crevice (112) established in the flank of the

housing for small thin cards (13) ] characterized.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the card-like adapter made to intervene in order to connect electrically a small thin card and the connection slot for memory cards of standard size prepared in body devices, such as a personal computer.

[0002]

[Description of the Prior Art] Conventionally, a digital camera etc. is loaded and the small thin card which is made to memorize photography image data and is used is marketed. The small thin card 30 which magnitude is about 45mm of about 35mmx abbreviation in about 0.8mm in thickness as shown in decomposition, the strabism, and the mimetic diagram of the card-like adapter of drawing 3 in it, and was equipped with the surface exposure terminal 31 is known. Load a camera with this small thin card 30, photo it, image data is made to memorize, and displaying a photography image on external instruments (not shown), such as a personal computer, at the display of delivery and an external instrument is also often performed in the storage image data of the small thin card 30 which removed this from the camera and removed it.

[0003] however, the card insertion attachment prepare in external instruments, such as the usual personal computer, be the thing of the magnitude which suit the so-called memory card of the standard size for personal computers of about 54mm width of face xabout 86mm die length x abbreviation (3.3-5.0) mm thickness, and since it be make to have suit said standard memory card, it be still more difficult [ attachment ] also for the number of pins of the terminal 27 for external connection to make insertion connection directly to the card insertion attachment which formed said small thin card 30 in said external instrument.

[0004] Then, an outline configuration and the configuration of the terminal area 27 for external connection are the same as the configuration of the memory card of the standard size for personal computers, and moreover carry out the concealment receipt of said small thin card 30, and the card-like adapter 2 of a configuration so that the small thin card 30 and external instruments, such as a personal computer, may be intervened in between and both can be connected electrically is needed.

[0005] The conventional card-like adapter 2 for small thin cards consists of 21d of \*\*\*\* and foundation ring 21e to which this side frame and a frame 21 cross at right angles in the one end section of this side frame as well as the long side side frames 21a and 21b of the pair of the card-like adapter 2, and central frame 21c of this side frame which

intersects perpendicularly with this side frame in the center section mostly, as shown in drawing 3.

[0006] And the stowage 23 for small thin cards is formed combining each part 21a", and said pars-basilaris-occipitalis 23a and covering device 23b which consists of 21b", said central frame 21c, and 21d of \*\*\*\* and foundation ring 21e of said long side side frame.

[0007] Two or more connector pins 25 for small thin cards are arranged on foundation ring 21e, and this lead section 25a is drawn from the through-hole 22. When said pars-basilaris-occipitalis 23a and covering device 23b are combined in this condition, the insertion opening 24 for small thin cards is formed, and the connector pin 25 is fixed.

[0008] The circuit board 26 and the terminal 27 for external connection of a card-like mold adapter are built into the remaining space of the card mold adapter 2, and pewter connection etc. performs between said drawn lead section 25a and circuit boards 26 and between the circuit board 26 and said terminals 27 for external connection, respectively. In this way, both sides of the assembled card-like adapter core part were covered with the metallic thin plates 29a and 29b, such as stainless steel, and the card-like adapter 2 for small thin cards had been obtained.

[0009]

[Problem(s) to be Solved by the Invention] However, by the above-mentioned conventional card mold adapter, since the structure of the metal mold for really forming this since it is the very unsymmetrical configuration which consists of the side frame, the central frame, \*\*\*\*, and the foundation ring of a pair will become very complicated, there is a trouble that a design will become complicated and metal mold costs will become expensive.

[0010]

[Means for Solving the Problem] It is the card-like adapter for small thin cards which has the outline configuration of the memory card of standard size which prepared the terminal area for external instrument connection in the shorter side side of another side while this invention was made in view of the above-mentioned trouble and preparing insertion opening for small thin cards from the cross-section side of one shorter side. The card-like adapter for small thin cards in which the frame which is the configuration member of said card-like adapter at least, and said whole housing for small thin cards were formed with another object is offered.

[0011] Furthermore, the means expressed to following are as an embodiment of the detail part about claim 1 is also offered.

a) A frame is a flat-surface abbreviation zygol-like one formation article. The shape of this flat-surface abbreviation zygol is mostly constituted by one central frame of the long side side frame of the pair of a card mold adapter, and said side frame which intersects perpendicularly with this side frame in the center. Furthermore, it is divided by said central frame by this central frame, and the through-hole for letting the lead section of the connector pin for small thin cards pass from space to the space of another side is formed in it. It is considering as the frame of an abbreviation symmetry configuration brief in short.

b) It has two or more connector pins for small thin cards which a small thin card housing can carry out the concealment receipt of the small thin card through insertion opening made combining the pars basilaris ossis occipitalis which prepared the first insertion opening part, and the covering device which prepared the second insertion opening part, and perform the terminal for connection and the electrical installation of a small thin card, and, as for insertion opening of said housing, the lead section of said connector pin is drawn to the opposite direction. He is trying to, assemble a small thin card housing in short at another process which is not related to a frame.

[0012] c) Said housing for small thin cards passes the through-hole prepared in said central frame at least, and makes two or more lead sections drawn from said housing project to it, and is combined with it. The things of a form brief in short are assembled and they are made.

d) In order to perform combination of said c certainly, fit in in the heights prepared in one inside of the long side side frame of a frame, and the crevice established in the flank of the housing for small thin cards. The thing of a form brief in short is assembled certainly, and is made.

[0013]

[Embodiment of the Invention] Hereafter, this invention is explained to a detail based on the example shown in drawing 1 thru/or 2. Drawing 1 is decomposition, the strabism, and the mimetic diagram of the card mold adapter for small thin cards of this invention, and drawing 2 is the strabism and the mimetic diagram for similarly explaining fitting of a configuration member, and combination.

[0014] Drawing 1 shows the card-like adapter 1 for small thin cards used in order to connect the small thin card 30 and external instruments, such as a personal computer, equipped with the memory section which magnitude is about 45mm of about 35mmx abbreviation in about 0.8mm in thickness, and has the surface exposure terminal 31. The outline configuration of this card mold adapter 1 is the same as that of the so-called memory card of the standard size for personal computers of about 54mm width-of-face

about 86mm die-length x abbreviation (3.3-5.0) mm thickness. As a configuration member, there is a frame 11 which really formed the long side side frames 11a and 11b of the pair of the shape of flat-surface abbreviation zygal 1, i.e., a card mold adapter, and one central frame 11c of said side frames 11a and 11b which intersects perpendicularly with this side frame in the center mostly. The through-hole 12 for letting lead section 15a of two or more connector pins 15 for small thin cards pass from one space 1A to space 1B of another side is formed in central frame 11c of this frame 11. [0015] Next, there is a housing 13 for small thin cards fabricated with another object in said frame 11. That this housing 13 for small thin cards should just combine pars-basilaris-ossis-occipitalis 13a which prepared one partial 14a of insertion opening, and covering device 13b which prepared another side partial 14b of insertion opening. In this way, inside the made housing 13 for small thin cards, the concealment receipt of the small thin card 30 can be carried out through said insertion opening 14. And it has two or more connector pins 15 for small thin cards which perform the terminal 31 for connection and electrical installation of the memory section of the small thin card 30, and, as for said insertion opening 14, lead section 15a of said connector pin 15 is drawn to the opposite direction.

[0016] Next, there are the circuit board 16 and a terminal 17 for external connection. And there are the metallic thin plate which consists of stainless steel for covering both sides of the card-like adapter axis for small thin cards which assembled and obtained the component described above etc., and 19a and 19b.

[0017] Combining each above-mentioned configuration member, the card mold adapter 1 is formed or the procedure of (1) - (8) performs the approach linked to external instruments (not shown), such as a personal computer, below.

(1) Arrange two or more connector pins 15 for small thin cards on the interior, where lead section 15a of said connector pin 15 is drawn, this \*\* pars-basilaris-ossis-occipitalis 13a and covering device 13b, and assemble \*\*\*\*\* and the housing 13 for small thin cards.

(2) While is constituted by the long side side frames 11a and 11b of the pair of a frame 11, and one central frame 11c, and arranging said housing 13 for small thin cards on space 1A, it lets said lead section 15a pass to a through-hole 12, and make it project to space 1B of another side. One example of this positive combination direction is shown in drawing 2. In drawing 2, form two heights 111 prepared in the inside of one long side side frame 11b of the card-like adapter 1 for small thin cards, it is made to correspond to this, and two crevices 112 are established in the flank of the housing 13 for small thin cards. And in case a through-hole 12 is made to project to space 1B of another side

through said lead section 15a after putting each heights 111 into the fluting of each crevice 112, each heights 111 are made to slide to the transverse groove of each crevice 112, and should just carry out fitting termination. Contrary to the above, heights are prepared in the flank of the housing 13 for cards, without limiting such fitting to this example. A crevice may be established in one long side side frame 11b of the card-like adapter 1 for small thin cards, and A crevice may be established in the both-sides section of the housing 13 for cards, and the long side side frames 11a and 11b of both card-like adapters 1 for small thin cards in heights, and the number of installation parts of the heights per long side side frame one side or a crevice may be arbitrary.

[0018] (3) Build the terminal 17 for external connection into the edge by the side of space 1B of another side of the long side side frames 11a and 11b. Here, two or more connector leads 18 of this terminal 17 for external connection will be in the condition of having projected inside.

(4) Make pewter connection of two or more connector leads 18 of lead section 15a of the circuit board 16 and the connector pin 15 for small thin cards, and the circuit board 16 and the terminal 17 for external connection by the space 1B side of another side.

(5) Although assembled above, a metallic thin plate, and 19a and 19b are stuck and covered to both sides, and the card-like adapter for small thin cards is completed.

[0019] (6) Insert the small thin card 30 in the housing 13 for small thin cards, and make two or more connector pins 15 for small thin cards which formed the terminal 31 for connection of a small thin card in the interior contact certainly through the insertion opening 14 of said card mold adapter for small thin cards.

(7) Make insertion connection of the card-like adapter for small thin cards to which said small thin card 30 was inserted and connected at the card insertion attachment for the memory cards of the standard size for personal computers (not shown) prepared in external instruments (not shown), such as a personal computer.

(8) Perform access with external instruments, such as a personal computer, and the small thin card 30.

[0020]

[Effect of the Invention] since a frame and the housing for small thin cards which has insertion opening for small thin cards are formed with another object by the card-like adapter for small thin cards of this invention as stated above -- the abbreviation also with the plain housing for frame configuration and small thin cards -- since it becomes a symmetrical configuration, it will become plain, and the structure of a molding die can also be easy to design, and a molding die can manufacture it cheaply.



[Brief Description of the Drawings]

[Drawing 1] Drawing 1 is decomposition, the strabism, and the mimetic diagram of the card-like adapter for small thin cards of this invention.

[Drawing 2] Drawing 2 is the strabism and the mimetic diagram for similarly explaining fitting of a configuration member, and combination.

[Drawing 3] Drawing 3 is decomposition, the strabism, and the mimetic diagram of the conventional card-like adapter for small thin cards.

[Description of Notations]

1 Card-like Adapter for Small Thin Cards

11 Frame

11a, 11b Long side side frame,

11c Central frame

12 Through-hole

13 Housing for Small Thin Cards

14 Insertion Opening for Small Thin Cards,

15 Connector Pin 15 for Small Thin Cards

15b Lead section,

16 Circuit Board,

17 Terminal Area for External Connection

19a, 19b Metallic thin plate,

30 Small Thin Card

31 Surface Exposure Terminal

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